IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Rai, Vikram
Serial Number:	10/717,065
Filed:	11/19/2003
Group Art Unit:	2617
Examiner:	Cho, Un C.
Confirmation No.:	7231
Title:	METHOD AND APPARATUS FOR SCHEDULING FORWARD DATA BURSTS IN WIRELESS NETWORK

APPEAL BRIEF

Mail Stop Appeal Brief - Patents
Commissioner for Patents
P. O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Appellant now submits its brief in this appeal. The Commissioner is authorized to charge Deposit Account No. 50-1482 in the name of Carlson, Gaskey & Olds in the amount of $540.00, as well as for any additional fees or credit the account for any overpayment.

Real Party in Interest

Lucent Technologies Inc., which is the Assignee of this application, is the real party in interest. Lucent Technologies Inc. is part of Alcatel-Lucent.

Related Appeals and Interferences

There are no related appeals or interferences.

Status of the Claims

Claims 1-3, 5-11 and 13-15 are pending and on appeal.

Claims 4 and 12 have been cancelled.

Claims 1, 2, 5, 6, 8-10, 13 and 14 stand rejected under 35 U.S.C. §103 as being unpatentable over U.S. Patent Application Publication No. 2001/0021180 (the *Lee* reference) in view of U.S. Patent Application Publication No. 2006/0114910 (the *Sindhushayana* reference).

Claims 3, 7, 11 and 15 stand rejected under 35 U.S.C. §103 as being unpatentable over the *Lee* reference in view of the *Sindhushayana* reference and furthering view of "admitted prior art."

Status of Amendments

There are no unentered amendments.

Summary of Claimed Subject Matter

Appellant's invention provides a way of arranging a permanent virtual pipe on a communication channel that facilitates a unique manner of scheduling data bursts on that channel. In particular, independent claims 1 and 8 include a permanent virtual pipe comprising a plurality of different width virtual pipes and at least one burst segment of each data burst is scheduled on the widest of the pipes.

Claims 1 and 8 are reproduced here, including reference numerals from Figures 1, 2, 5 and 9 in parentheses and references to the description in brackets.

> 1. A method at a base station (101, 102) in a code division multiple access wireless network that transmits data bursts on a high-speed forward channel (107), the method comprising the steps of:
>
> providing at least one permanent virtual pipe (201, 202) comprising a plurality of different width virtual pipes on the high-speed forward channel for transmission of the data bursts, at least one of the plurality of different width permanent virtual pipes being wider than another of the virtual pipes {page 10, lines 4-16};
>
> scheduling transmission of burst segments of the data bursts on the at least one permanent virtual pipe in a round-robin manner among different data bursts, at least one burst segment of each data burst being scheduled for transmission on the widest virtual pipe (908){page 13, line 14 – page 19, line 4; page 24, lines 17-

21}; and

transmitting the burst segments on the at least one virtual pipe in accordance with the scheduling {page 11, lines 18-20}.

8. A base station (101, 102) in a code division multiple access wireless network that transmits data bursts to mobile terminals on a high-speed forward channel (107), the base station comprising:

means for providing at least one permanent virtual pipe (201, 202) comprising a plurality of different width virtual pipes on the high-speed forward channel, at least one of the plurality of different width permanent virtual pipes being wider than another of the virtual pipes {page 9, lines 10-11; page 10, lines 4-16};

scheduling means (101, 102) for scheduling transmission of burst segments of the data bursts on the at least one permanent virtual pipe in a round-robin manner among different data bursts, at least one burst segment of each data burst being scheduled for transmission on the widest virtual pipe (908){page 9, lines 10-11; page 13, line 14 – page 19, line 4; page 24, lines 17-21}; and

means for transmitting (101, 102) each burst segment on the at least one virtual pipe in accordance with when it is scheduled for transmission {page 9, line 23 - page 10, line 1; page 11, lines 18-20}.

The references to the figures and description above indicate how the claims read on an example embodiment.

Grounds of Rejection to be Reviewed on Appeal

Claims 1, 2, 5, 6, 8-10, 13 and 14 stand rejected under 35 U.S.C. §103 as being unpatentable over U.S. Patent Application Publication No. 2001/0021180 (the *Lee* reference) in view of U.S. Patent Application Publication No. 2006/0114910 (the *Sindhushayana* reference).

Claims 3, 7, 11 and 15 stand rejected under 35 U.S.C. §103 as being unpatentable over the *Lee* reference in view of the *Sindhushayana* reference and furthering view of "admitted prior art."

ARGUMENT

There is no *prima facie* case of obviousness against any of Appellant's claims because neither of the references relied upon by the Examiner provides a plurality of different width virtual pipes with at least one of those pipes being wider than another and at least one burst

segment of each data burst scheduled for transmission on the widest virtual pipe. Without that, there is no possible *prima facie* case of obviousness.

The rejection of claims 1, 2, 5, 6, 8-10, 13 and 14 under 35 U.S.C. §103 must be reversed.

The Examiner proposes to combine the *Lee* and *Sindhushayana* references. The Examiner is correct on page 3 of the Final Office Action when the Examiner states that the *Lee* reference "does not specifically disclose comprising a plurality of different width virtual pipes in the high-speed forward channel for transmission of the data burst, at least one of the plurality of different width permanent virtual pipes being wider than another of the virtual pipes and at least one burst segment of each data burst being scheduled for transmission on the widest virtual pipe."

The Examiner is incorrect, however, when suggesting that the *Sindhushayana* reference "remedies the deficiencies of *Lee*." The *Sindhushayana* reference provides different data rates but does not provide different width virtual pipes. The Examiner relies upon the different data rates of the *Sindhushayana* reference for attempting to supplement the teachings of the *Lee* reference for manufacturing an allegedly *prima facie* case of obviousness.

Applicant respectfully submits that the ***different data rates*** used in the *Sindhushayana* reference ***do not constitute different width virtual pipes*** and certainly none that are permanent. At best, using the *Sindhushayana* technique would result in using different data rates at different times on the high speed forward channel of *Lee*. That is not the same thing as providing a permanent virtual pipe comprising a plurality of pipes of different widths.

Additionally, the *Sindhushayana* reference does not include having at least one burst segment of each data burst scheduled on a widest virtual pipe. Even if the data rates of the *Sindhushayana* reference could be reasonably interpreted as different width virtual pipes, the

Sindhushayana reference does not schedule at least one burst segment of each data burst at the highest data rate. Instead, the *Sindhushayana* reference uses a technique that chooses a data rate based upon a DRC message from a mobile station.

For example, paragraph [0047], beginning at line 8, teaches that a remote station determines channel conditions and transmits a DRC message that requests a "low data rate packet" if the channel conditions are not favorable. The base station of the *Sindhushayana* reference then transmits packets according to parameters stored in the scheduling unit, which will include a low data rate. That is not the same as always having at least one burst segment scheduled at the highest possible rate. Therefore, even if the different data rates of the *Sindhushayana* reference hypothetically could reasonably be interpreted as different width virtual pipes, the *Sindhushayana* reference does not schedule at least one burst segment of each data burst at the highest data rate. Therefore, it is impossible to interpret the *Sindhushayana* reference as stated on page 5 of the Office Action where the Examiner contends that the reference teaches "at least one burst segment of each data burst being scheduled for transmission on the widest virtual pipe."

Paragraph [0049] of the *Sindhushayana* reference, beginning at line 17, teaches that the rate control algorithm provides a lower bound estimate for actual SINR during a next packet duration and determines a maximum data transmission rate that could be sustained based on the SINR lower bound estimate. Paragraph [0049] of the *Sindhushayana* reference also teaches using "a conservative measure of the data transmission rate at which the next packet can be received." In other words, the *Sindhushayana* reference does not always use the maximum data rate. It, therefore, cannot possibly always schedule at least one burst segment of a data burst at the highest data rate (i.e., on the Examiner's "widest virtual pipe"). It follows that it is

impossible to interpret the reference as teaching scheduling at least one burst segment of each data burst on a widest virtual pipe (assuming only for the sake of discussion that a highest data rate can be interpreted as a widest virtual pipe).

The rejection must be reversed.

The rejection of claims 3, 7, 11 and 15 under 35 U.S.C. §103 must be reversed.

As explained above, the *Lee* and *Sindhushayana* references, even if they can be combined, do not teach what the Examiner contends. There is no *prima facie* case of obviousness at least because there is no scheduling of at least one burst segment of each data burst on a widest virtual pipe. The proposed addition of allegedly admitted prior art does not remedy that defect in the base combination. Therefore, there is no *prima facie* case of obviousness against any of these claims. The rejection must be reversed.

CONCLUSION

There is no *prima facie* case of obviousness. Even if the references are combined as suggested by the Examiner, there is nothing corresponding to the type of data burst scheduling as recited in Appellant's claims. Without any teaching of scheduling at least one data burst segment on a widest of a plurality of virtual pipes, there is no possible *prima facie* case of obviousness. All rejections must be reversed.

Respectfully submitted,

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December 16, 2009
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APPENDIX OF CLAIMS

1. A method at a base station in a code division multiple access wireless network that transmits data bursts on a high-speed forward channel, the method comprising the steps of:

providing at least one permanent virtual pipe comprising a plurality of different width virtual pipes on the high-speed forward channel for transmission of the data bursts, at least one of the plurality of different width permanent virtual pipes being wider than another of the virtual pipes;

scheduling transmission of burst segments of the data bursts on the at least one permanent virtual pipe in a round-robin manner among different data bursts, at least one burst segment of each data burst being scheduled for transmission on the widest virtual pipe; and

transmitting the burst segments on the at least one virtual pipe in accordance with the scheduling.

2. The method of claim 1 wherein the step of providing at least one permanent virtual pipe comprises provisioning predetermined channel resources to the at least one virtual pipe.

3. The method of claim 2 wherein the predetermined channel resources comprises a predetermined number of contiguous Walsh codes and a predetermined amount of contiguous real estate on the base station's CDMA ASIC.

5. The method of claim 1 further comprising: scheduling transmission of the burst segments of a data burst amongst the different width virtual pipes in a round robin manner.

6. The method of claim 1 wherein the base station operates in accordance with CDMA2000 standards and the virtual pipes are provided at widths chosen from among: 19.2 kbps, 38.4 kbps, 76.8 kbps and 153.6 kbps.

7. The method of claim 1 further comprising the step of: transmitting an ESCAM a predetermined time interval before transmitting a burst segment, the ESCAM providing information for receiving the burst segment.

8. A base station in a code division multiple access wireless network that transmits data bursts to mobile terminals on a high-speed forward channel, the base station comprising:

means for providing at least one permanent virtual pipe comprising a plurality of different width virtual pipes on the high-speed forward channel, at least one of the plurality of different width permanent virtual pipes being wider than another of the virtual pipes;

scheduling means for scheduling transmission of burst segments of the data bursts on the at least one permanent virtual pipe in a round-robin manner among different data bursts, at least one burst segment of each data burst being scheduled for transmission on the widest virtual pipe; and

means for transmitting each burst segment on the at least one virtual pipe in accordance with when it is scheduled for transmission.

9. The base station in accordance with claim 8 further comprising a burst segment control means associated with the at least one permanent virtual pipe for storing when each burst segment is scheduled for transmission, the transmitting means transmitting a burst segment in response to a signal from said burst segment control means to transmit the burst when it is scheduled.

10. The base station of claim 8 wherein the means for providing at least one permanent virtual pipe comprises a provision of predetermined channel resources to the at least one virtual pipe.

11. The base station of claim 10 wherein the predetermined channel resources comprises a predetermined number of contiguous Walsh codes and a predetermined amount of contiguous real estate on a CDMA ASIC.

13. The base station of claim 8 wherein the scheduling means schedules transmission of the burst segments of a data burst amongst the different width virtual pipes in a round robin manner.

14. (The base station of claim 8 wherein the base station operates in accordance with CDMA2000 standards and the virtual pipes are provided at widths chosen from among: 19.2 kbps, 38.4 kbps, 76.8 kbps and 153.6 kbps.

15. The base station of claim 8 wherein the transmitting means transmits an ESCAM a predetermined time interval before transmitting a burst segment, the ESCAM providing information for receiving the burst segment.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.